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AUTHOR Moore, Judith
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ABSTRACT

This case study of East School, a central Vermont K-2 school with 125 students, describes the early stages of changing instruction and learning in a school with established district-wide standards. Changes in teaching at the local level were led by example, modeled by a dynamic principal as she encouraged the teachers to move towards a more integrated teaching framework. The case study also describes the contributions and struggles of a dedicated volunteer who felt a deep ownership of the project and yet was not allowed to truly work with the team, which brings forth questions around the inner-workings of the team, the role of outside facilitators, and team understanding of project goals and objectives. The findings of this case study lead to the conclusion that the principal's leadership, the teachers' shared values, and their general understanding of integrated curricula have supported a move towards integration across grades and subjects. A checklist of considerations for those working towards educational change through the creation and implementation of integrated curricula is included in the appendix. Contains 18 references. (JRH)

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EAST SCHOOL: MOVEMENT AND GROWTH

A Case Study for the Vermont Institute of Science Math and Technology

Judith Moore
University of Vermont
Department of Education
Stockcen@AOL

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East School: Movement and Growth
Judith S. Moore

Last April, East School, a central Vermont K-2 school with 125 students, led the town's first annual wildlife count. The East School Wildlife Count Project was supported by a curriculum development grant from the Vermont Institute of Science Math and Technology. This integrated, inquiry-based Wildlife Count spanned the course of the school year, with high points including a fall school-wide hike, a spring Wildlife Count (Audubon Society-style) and culminating with a picnic at the "bird lady's" sanctuary. Preparation for the actual count included the study of local species of birds, mammals and amphibians and their habitats via hands-on integrated activities, children's literature, drama and song, journaling, observing and presentations from local naturalists. In addition, students K-2 wrote survey questions, created the standard tally sheet used in the actual count and all received some exposure to computer technology. The overall project plan also contained a computer-related component that was not completely implemented.

The East school story describes the early stages of changing instruction and learning in a school with established district-wide standards. Changes in teaching at the local level of East School were led by example, modeled by a dynamic principal, Marvie Campbell, as she encouraged the teachers to move towards a more integrated teaching framework. The East school story tells of strong leadership in an atmosphere of shared values and joint understanding of integrated curricula. Thus teachers were able to overcome the difficulties of adding the new and sometimes more demanding expectations of the Wildlife Count Project to their teaching duties. In this way, the door was opened to the Wildlife Count , a program that may lead East School to effective integrated teaching across subject areas and grades, involving students, teachers and community.

The story also describes the contributions and struggles of Vicki, a dedicated volunteer, computer expert and personal friend of Marvie, who, with input from Marvie, wrote the VISMT grant proposal. Vicki felt a deep ownership of the project and yet was not allowed to truly work with the team, which brings forth questions around the inner-workings of the team, the role of outside facilitators and team understanding of project goals and objectives.

The findings of this case lead to the conclusion that Marvie's Campbell's leadership, the teacher's shared values and their general understanding of integrated curricula have supported a move towards integration across grades and subjects. The fact that the Wildlife Count is returning in 1996 illustrates that change in curriculum and instruction is underway at East School. This return, coupled with the district-wide definition of vision and goals, shows that East School is in the process of defining change at the local level. A checklist of considerations for those working towards educational change through the creation and implementation of integrated curricula is included in the appendix.

EAST SCHOOL: MOVEMENT AND GROWTH
A VISMT Case Study

Judy Moore
University of Vermont

East School stands tall amid swaying trees, playground equipment and running children. The old fashioned, two story red brick building houses two first grades, two second grades, a morning and an afternoon kindergarten, a total of 125 students. Inside, ceilings are high and windows huge, creating a bright, echoing sound as the children pass through the halls.

East School is the smallest of the Brookmoor schools, and yet, it plays a significant role in community leadership. As stated in the East School brochure, those associated with East School believe in the "partnership of children, parents, teachers, administration and community to promote excellent education....Communication and trust are essential in achieving our goals." Exemplifying this belief this past April, East School lead Brookmoor's first annual wildlife count (also called animal count). As described by Vicki, the volunteer project creator, "On one day, for the same two hour period, everyone will walk their designated neighborhoods and mark their tally sheets. Parents and neighbors will accompany the young students and help with the observations."

This is the type of project that we might expect to find in an affluent, stylish community. Brookmoor is anything but that. This is a tired town, a town that used to be, a town with high unemployment, closed factories, strip stores on the outside of town, a struggling downtown, and little hope for economic growth. And yet, the public schools, three elementary, one junior high and one high school, are part of Vermont's New American Schools Coalition. The school district is restructuring the schools, laying out plans for schools to better themselves and excite the students about learning. The schools are dedicated to preparing the young people of Brookmoor for the 21st century. They see hope for the community and are working in conjunction with community services and businesses to offer the best possible education to Brookmoor students.

This feeling of breaking new ground, this excitement and happiness about learning, radiates throughout East School. In fact, East School is a beehive of activity. There is a certain buzz in the air as people dedicated to teaching and supporting students come and go from many different directions; as students work in cooperative groups and as teachers field requests and respond to needs.

Much of this electricity radiates from the teaching principal, Marvie. She instilled her love of learning in the East School children as their kindergarten teacher. And she continues, both as the principal and as a rotating weekly teacher, to work with each and every child in the school. The VISMT grant to be discussed in this study was her

idea; it was written up by Vicki, Marvie's friend and a volunteer to the East School. Marvie and Vicki, together, then played a major role in its implementation.

In this case study, I will describe the journey, sometimes exciting and invigorating, sometimes tiring and frustrating, taken by Marvie and Vicki as they experienced the implementation of the East School integrated inquiry-based wildlife survey project. In an effort to identify the aspects of this integrated curriculum model that may have influenced educational change at East School, I will examine recurrent project themes and illustrate how they supported or impeded the implementation of the curriculum. Finally, using the East School experience, I offer a checklist of considerations for those seeking educational change through the creation and implementation of integrated curricula (see appendix).

THE VISMT GRANT PROPOSAL

Marvie's friend, Vicki, using her past experience of middle school computer teaching, wrote the VISMT grant for East School. Marvie envisioned a proposal to fund an integrated Science Math and Technology curriculum project that would incorporate the purchase of a CD Rom. Working with just this information and the VISMT application form, Vicki created a "wildlife survey " project. The objective of the project was to teach a standard sampling technique for accurate data collection through the use of cooperative data collection and computer assisted analysis, which included teaching children basic computer skills and how to handle data. Children were to use the CD rom to access animal encyclopedia software which allowed them to hear and see the animals and key words. They were to meet with area wildlife authors and the local Audubon Society count compiler, the "bird lady". On the day of the animal count, along with students from two other district schools, parents and friends, the East School students would cover the town, taking down information in the same way and answering the same set of questions. These questions would be written by the East School students after they learned about animals and their habitats from local experts and research. The raw data on the town wildlife would then be used in graphing, mapping and other activities.

Vicki wrote herself into the grant as a volunteer technology tutor. She would train the teachers and parents on computers, teaching them how to work with databases, how to research and how to instruct children. She promised to work with the two first grade teachers, Fran and Gae; the two second grade teachers, Karen and Larry; Marvie, the principal-kindergarten teacher and any parents that would become part of the database team. As the project played out, Vicki was to become Marvie's right hand in overseeing the "wildlife count". Her interest in the project, spurred on by her love of nature, concern for the education of the children of Brookmoor and support of Marvie and the town of Brookmoor, all pushed her into the role of joint project manager. Among other things, Vicki was to train teachers, children and parents; drive guest speakers; arrange meetings; solicit books, materials and even a bird house; keep notes; oversee technological difficulties; and participate in each and every activity of

the project.

METHODOLOGY

I first visited the school in May of 1994 and made five subsequent visits throughout the following school year. I interviewed teachers and support teachers (Eleanor, the bird lady, Vicki, visiting authors) from two to five times, visited classes, observed visiting speakers, attended staff meetings, participated in the wildlife count, and conferred with Marvie, Vicki, the school secretary and the district curriculum coordinator on various occasions. In addition, I conducted numerous telephone interviews as well as two surveys of the teachers. I used the first survey to formulate interview questions and the second to summarize teacher experience (see appendix).

My background, interests and beliefs as researcher also contribute to observations brought out in this study. I am extremely interested in and supportive of the efforts of East School to implement the integrated animal count curriculum. I am an elementary school principal at a school deeply involved in integrated curricula. I see my duties as principal to include the encouragement and facilitation of the use of integrated curricula.

I am also a doctoral student in the field of education and will write my dissertation on some aspect of integrated curricula. My studies and career lead to my support of integrated curricular efforts, especially those of making learning more student-centered, connecting the disciplines and encouraging the relationships between disciplines, making learning more relevant to students' lives, developing higher-order and creative thinking, teaching and learning by making connections, and providing an effective way to address the phenomenal growth of knowledge.

THE WILDLIFE SURVEY: THE STORY

In many ways, the story of the wildlife count grant project is like a visit to a carnival. There have been the constant ups and downs of riding the merry-go-round horses. There has been loud, joyful, and sometimes jarring, music. There has been total lack of control as the riders whirl around and around in endless circles, music blaring, lights flashing. There has been complete, unabashed involvement as the ponies, rockets or roller coaster cars rise to the top of a run, poised to take off to points unknown. There have been times of frustration, and even disappointment, reminiscent of the wild run to claim a certain bumper car, only to end up in the oldest or ugliest one. And there has been the elation we feel when we walk away from the carnival, filled with memories of excitement, participation, hope and expectation for better things to come. These are the emotions, the feelings, the actions and interactions that I hope to describe as this story unfolds.

I made my first contact with Vicki and Marvie in May of 1994. I attended the staff meeting set for the introduction of the project. Vicki and Marvie wanted teacher input on the grant. Although teachers knew that a CD rom would be funded by a grant, they were not aware of any details of the project. The formulation and writing of the grant

had been done without their input. Teachers had received a copy of the grant in their mailboxes prior to the meeting and been asked to read it.

The staff meeting was a forty-five minute lunch meeting. Discussion of the project was given twenty minutes. Eleanor, the "Bird Lady", and I were present. Marvie oversaw the meeting and began by explaining the purpose of the meeting - "to discuss our VISMT grant and to introduce you to Eleanor... and Judy Moore." Both Marvie and Vicki beamed with excitement about the wildlife count as they presented a sketch of curricular hopes. " So they would really be learning process. It is more than specific facts, but learning a scientific process..."

As a group, the staff appeared supportive of each other, but very harassed for time. Because of time pressures, there was little discussion of the project. Teachers listened to the overall outline of the project and asked a few scheduling questions. Generally, they reacted to the proposed planning as something too far away to discuss, like parents counseling children to wait until summer to plan for the carnival. As one teacher put it, "Well, that (group planning) will come later when we organize."

Later conversations with Vicki brought forth some of the author's concerns. She had actually organized a mini-computer workshop for that particular May staff meeting. Instead, the precious forty-five minutes flew by discussing project outline and scheduling. Vicki realized that although teachers might want to support the wildlife count, it would be in addition to everything else already planned for the upcoming school year. Teachers would have to choose from the bright array of carnival activities. "It's not that it isn't valued, but it has to fit into the scheme of things".

Vicki felt that the project would go more smoothly when she got teachers more interested in computers. She stated that teachers would need to be computer literate and incorporate computer use into their teaching. She was willing to train them, even during the summer, but this never materialized. September in-service meetings brought renewed hopes. Again, nothing. Teachers were scheduled for district-wide meetings and spent the rest of the time preparing for students. The carnival had simply not yet gotten to town.

In October, Vicki actually did run an effective teacher education session. Vicki reported a change in attitude. The teachers were no longer afraid to get on the merry-go-round, but they still needed some coaxing. There was a willingness to learn and pride in accomplishments. She was gratefully thanked for her volunteer help. Teachers learned how to work with a data base and created a student survey eliciting name, birthday, favorite animal, favorite school activity. Teachers were given the model to follow working well with the concept. Vicki planned to follow up with an informal classroom visit to see if the survey was being used.

After a two week absence, Vicki felt like she was still waiting in the ticket line. The ride was not quite ready to begin. Vicki found that teachers had still not put the survey to

use. Seeing that this stage of the project was simply not getting done, Vicki found herself working with student groups in the classrooms and educating parents. When people could not attend sessions, she offered more sessions, often teaching one person at a time.
Like Vicki, Marvie was busy making sure the carnival rides would run smoothly and efficiently. She saw to general implementation planning, working steadily on material and equipment ordering, curriculum preparations, scheduling visiting authors, speakers and special events. The "kick-off" event would be the October hike up Mr. Ephraim when children would have an opportunity to observe various animal signs and habitats. Like Vicki, Marvie also took over a teaching responsibility and organized her teaching week so she could meet with each class on a weekly basis. As the children rotated through her classes, she began to bring the project to life with weekly observations of wildlife, animal signs, and seasonal changes. These observations were maintained in "noticing journals". The children were starting to enjoy the rides, but the teachers had not yet come to the carnival. Teachers later commented to me, "It's great of Marvie to take the kids; it gives us time to plan."

In general, the teachers were not yet "into the project". This they saw happening in the spring, because there was so much else to do at this point. Aside from special events already scheduled (a math residency, an artist in residence and an annual fund raising circus), there was the regular curriculum to teach. At the first grade level, teachers were concentrating on teaching children to read. They felt it was more important to teach them that bird started with "b" than to get into the different kinds of birds. The second grade teachers could support the project more directly because they were able to work it into their existing curriculum - one teacher did an invertebrate unit and the other a unit on birds. All teachers were very open in saying that the project was a good idea, but that there was too much to do. They were choosing to ride the well-known rides and found no time to try any new ones. There was a need to drop something in order to add something to the already demanding schedule.

I returned to the school in January and again in February. I was able to observe a visit from Ronald Rood, a local naturalist, animal lover and author, as he spoke with children about animal signs. Ronald's first presentation was to the two lst grade classes. About 25 kids were clustered together, seated on the floor. There were at least ten adults in the room, all seated at the back of the room, quite removed from the children. Most of them were working, correcting papers, cutting or pasting. The only adult that joined the group was Vicki, commenting as she sat in the midst of the children, "Oh, this is so exciting to have Mr. Rood here. Aren't we going to learn a lot?" The children might have been ready to take the ride, but the adults were not part of the excitement.

Ronald was with the children for about 45 minutes. Much of this time was spent fielding questions, but he also told several animal stories containing examples of the curiosity of animals and how people should go about observing animals in their habitats. He spoke of animals being creatures of habit, like people. "What do we do

every morning? We get up, we yawn, we wash up...what do animals do?" He told the story of the farmer who washed the dishes every night after supper. He put the dog out, read his paper, brought the dog in. Then he would walk across the room, cover the parakeet's cage, and say, "O.K. Rusty, go to bed now." The dog would go lie behind the stove and curl into a ball on his bed. One night, he did all his usual things, except when he went over to cover the parakeet's cage...before he could say, "O.K. Rusty, go to bed now", the parakeet chirped up and said it for him!

The children listened, with intermittent movement. They appeared more interested in their own stories. There was minimal teacher input and interaction during the 45 minutes. Fran, a Ist grade teacher removed an overactive child from the classroom at the onset. They did not return. Vicki asked if animals would return to the same spot and suggested that children could get ready for the animal count day by finding out what animals had been seen in their neighborhoods. Towards the end of the time, the other Ist grade teacher, Gae, made one or two comments about the writing process and Ronald Rood's writing process. She then moved in to take the group from him, thanking him and telling her own parakeet story. The Ist grade children then went to their next activity.

In contrast, my visit with the kindergarten class represented a merry-go-round full of thrilled, happy children, riding the ponies to the crest of the hill. Before Ronald came in to speak, Marvie was seated on the rug with the children showing them a large paper wasps' nest. She referred to Ronald and his books, as she guided children in studying pieces of the nest under magnifying glasses while they felt and discussed the fibers that made the nest. The merry-go-round was whirling rapidly now, as they all pretended to be wasps themselves, swooping around, chewing off bark, chewing it up and spitting it out to build the nest. They made paper from wood shavings, whipping them up in the blender and adding water. They asked many questions, some of which Marvie answered and some she wrote on the board to ask Ronald.

Ronald, who expected to spend only 30 minutes with the younger group due to short attention spans, was amazed at the interest and questions. "Where were the wasps for the winter? How do they get into their nest?" Marvie had to intervene and pull us all away from the absorbing discussion. There was no fidgeting problem; no children were removed; children were interested; they had a hands-on activity; they asked questions that lead to new learning. This group had been well prepared for Ronald's visit and they reaped the benefits.

In February, I interviewed Eleanor about her teaching experiences. Eleanor, a 78 year old bird lover, lives in the country, with ponds and woods all around her. She spends her time watching and studying birds. She has large pens where ducks winter, freeing them to enjoy the pond and woods in the spring. She was in charge of teaching bird recognition. Her "main concern is to teach kids how to use observational skills to see what a bird looks like."

Eleanor's experiences up to this point, indicated that the older children were becoming more aware of the project and therefore more interested. She brought in a wood duck on two separate occasions. The children were fascinated as they learned identifying features and discussed the natural habitat of the duck. Eleanor wore different bird shirts each time she came, using them for reference. The children became familiar with various kinds of birds (grosbeak, red-winged blackbird, etc) and how to describe them with the correct vocabulary. Vicki arranged for a donation of laminated picture cards of common birds. Eleanor suggested that teachers use these cards to practice bird identification with the children. Eleanor described student involvement, "the kids are really interested. They ask good questions, especially the lst and 2nd graders. Kids see me as a resource. They ask me questions and tell me stories." Eleanor and Vicki planned next to choose what birds would go on the checklist for the survey.

I surveyed teachers in January and prepared interview questions from the survey information (see appendix). I interviewed the teachers and Marvie in February. I was searching for their opinions and reactions to the project and how the wildlife count had affected their teaching and attitudes. I gained insight into many opinions and reactions, but the teachers felt it was too early to gauge project influence on their teaching and attitudes. They indicated that the carnival had just opened, with only a few rides running.

My February visit showed a marked increase in activity associated with the project. The park lights were shining, the music was playing, children and adults alike were waving to each other as the rides twirled and whirled. The wildlife count was real and exciting; the children could visualize what was coming; they understood why they were learning about different animals and their habitats. Marvie had now spent almost three months with the children and their "noticing journals". Second grade children had completed units emphasizing birds and wildlife. Children were being exposed to visiting authors and specialists and, via Marvie's weekly classes as well as classroom teaching in kindergarten and second grade, being prepared for these visits.

Teachers also noted the increased involvement and activity, "The kids are very excited. Their observation skills are great and they are using the vocabulary well." "Vicki got a bird feeder and we put it out. The kids made bird feeders here in class. They took them home and now they report back to me what birds have been eating at it." "The bird lady has made a great impact. Lots of the kids' parents feed the birds and the kids recognition skills are being used."

Follow-up visits by the bird lady and Vicki started to bring birds and technology into the forefront. Eleanor returned twice in March to work with bird recognition and observation skills. Vicki kept up her computer efforts through January, February, and March. And, Marvie's weekly classes, using literature, puppet shows, nature walks, discussion and pictures, introduced new animals, insects, birds and their habitats.

The project lost some of its momentum in March due to a death in Marvie's family,

however. Marvie's weekly classes were suspended for two weeks, animal count and Steve Perren (a visiting author) plans were left for the last minute, and Vicki's technology role remained undefined. More bad news was to follow with Fran, one of the first grade teachers having to take an extended leave due to illness, a death in Gae's family, one in Vicki's family and another in Marvie's.

Nevertheless, the show must go on and the carnival was not rescheduled. When I returned April 22 for the animal count, activity had resumed. As planned with Vicki and Eleanor, Marvie had met with volunteer animal counters the evening before, outlining how to lead count groups, school rules and expectations. Eleanor gave a crash course in bird recognition and discussed the tallying procedures. Areas were defined and assigned. Eleanor explained her role, "I talked about ways to count wildlife: to approach a field or pond slowly and quietly so you don't scare the woodchuck away and how to count a flock of birds by counting 10 as quick as you can and then see how much space they take up and then estimate 10, 20, etc..."

The following morning was beautiful - bright sun and sixty degrees. Almost thirty volunteers, including one friend of the school and two Audubon members, gathered to lead small groups of multi-aged children in the animal count. Everyone in the school went, leaving another volunteer, Marvie's mother, to answer the phone.

I went with Eleanor and three children. Our first grade representative, Carolee, anticipated our outing with, "I think we will see deer, birds, fish, alligators, frogs..." We explored a wildlife preserve on the outskirts of town. The children loved every minute of our two hour hike up hills, through fields and woods, along streams and swamps. While trotting along paths, they spotted and tallied hawks, cardinals, sparrows, crows and a Great Blue Heron. Bear and moose were among our choices on the tally sheets as well, "We put bear and moose on," Eleanor told me, "to let the kids think about it and give them an awareness of what is out there, even though they will not see one." Our largest number of sightings were birds and we were lucky to have the expert, Eleanor, with us. She explained the calls and habits of the various birds, using the laminated bird cards to verify our sightings. Five year old Sabrina summarized, eyes shining: "We counted some birds, a lot of big birds, a heron, a Blue Heron with big, big wings and I saw a tree with an X, did you?" We returned thirty minutes late, tired but happy.

Other groups were just starting to return. The excitement was contagious. Children milled around sharing stories, showing pieces of fur, favorite rocks and in one case, half a salamander. Group leaders explained what they had done, "When we didn't find too much, I started encouraging looking for insects, signs, footprints, caterpillars and water spiders. We needed to find some things. We needed to rethink. It was really hard to sneak up on anything." "This is such a terrific opportunity for kids. I don't think we take the time to go out in a field and sit and watch. This was great for them." Eleanor was cornered by several volunteers to clarify bird identities. Tallies were handed in, children were ushered off to the lunchroom and a picnic lunch for volunteers and teachers was served in the bright sunlight. It was just as Marvie had

predicted in a conversation we had in February, "When it (the animal count) happens, I think people will return feeling wonderful, feeling high."

Everywhere I turned, I heard the words that fill our minds as a day at the carnival nears an end, "next year...". There were suggestions for changes: "We could have stayed out much longer." "I think we should work more on animal signs." "The children were so good and knew so much. They could easily have identified many more kinds of birds." "Let's go out in the evening or morning when birds are at their busiest." "I thought it would be fun to take little dictaphones and several of the groups could make recordings and come back and learn them." And, following that thought, Eleanor added, "Yes, I taught them words for the sounds. Sabrina said she heard 'cheeseburger, cheeseburger'."

It is culminating activities like this that bring together the overall efforts of integrated projects. And yet, this was not the end. Fond memories of the day at the carnival in the form of the animal count kept reappearing as Marvie continued her weekly classes and observation walks, as Steve Perren came with slides and stories focusing on how to make a "backyard habitat", as plans continued for the celebration picnic to Eleanor's pond.

A review of this integrated project illustrates the use of many methods and mediums to teach all the children, K-2, about nature, animals, birds, insects, habitats, observation skills, data collection, and survey writing. This review also lets us feel the excitement and joy of learning that came as a result of the entire effort. Children experienced learning by doing, learning by using all the senses, learning by sharing with community, learning by cooperation and hands-on activities. They questioned and found answers and they wanted to know more.

This review, however, does not include computer technology as an integral part of the project, for the integration of computers into the project was difficult. Computers, to busy teachers with minimal experience in integrating technology into the curriculum, represent the newest and most awesome ride at the carnival. The ones who have tried it tend to return over and over; the shy and inexperienced will ride the old favorites, with joy and contentment. Introduced to the new ride, some teachers and volunteers worked with databases. Children, with Vicki and volunteers, keyed birthday survey information into a birthday calendar. Vicki saw this activity as a way to allow children to practice keyboarding, but also an avenue to additional learning. "I wanted every child to have some part of the entry. One would read and the other would type. They lost their place, needing and learning visual clues on how to read a list; we had to figure out that the 4 meant April and how to correctly write the date..."

Vicki pushed forward from there towards correlating the creation of the birthday calendar to the animal count, but was dubious as to the outcome of her efforts, "Teachers using the database ... I don't know what to do. You need to use it right after you learn it, or you forget it." Vicki saw the standard tally sheet creation, survey writing

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and data gathering as leading up to an animal count data base. This data base could then assist in learning about mapping and graphing. But, she saw too many hurtles in the way, "I would like to zero in on the follow up of the animal count, but it may not happen this year."

Discussions with Vicki throughout the project indicated continual concern that the computer end of the project might not come to pass. She found a lack of time, a lack of teacher knowledge and understanding of computers and a lack of technological support to be her greatest barriers. The CD rom was never used due to technological problems and an uncooperative district computer consultant. It was not until mid May that Vicki finally convinced the consultant to fix the broken cable. Thus, Vicki was not able to use the Audubon software and the Grolier's Encyclopedia with the children, teachers and volunteers.

Vicki also worried about hands-on database for kids, "The idea of training a bunch of fifth graders to enter the data is a bit daunting." This lead to a revision of her original grant proposal idea of having students create the database to having students help her choose the database fields as they explored together what they had seen during the animal count.

Both Vicki and Marvie saw the connection between the computers and the animal count and Marvie invited staff to another teacher development session on database. Vicki had met with students to isolate the fields they wanted to create and now needed teachers to write the animal count database. "There was no zip there. They came late and left early. It must be my presentation. I have not touched them in ways to help them use it." "...I don't see as much change as I had hoped." and, "Wednesday our school budget did not pass and it is affecting everyone." And yet, Vicki looked to her next step. "On the ploy that Karen did not get to the meeting, I will meet with her and the other second grade teacher and try to get them to do the database." Or, maybe it will have to be worked in next year. Maybe, Vicki concluded, "they (the teachers) can begin with the database, graphing and mapping."

With three weeks left of school, the first grade teacher just beginning to return on a part-time basis, the numerous end-of-year activities and Marvie's family concerns, final integration of computer technology into this project is not a priority nor a realistic possibility. At best, the integration of computers into the project will come in the second phase. Computers were introduced to all and used by some, but they will remain the exciting new ride for next year, as this integrated project changes and grows with the needs of the learning community. As Marvie put it, "This year we were groping. Another year will be easier."

PROJECT EVALUATION

Throughout the project, the tone was positive. The underlying mutual encouragement of and belief in students, staff and community permeated the efforts of all concerned. My final survey of teachers revealed strong support of the project, even though they

generally saw this project to differ from other curricular efforts. Only one teacher was uncertain as to whether or not the project should be part of next year's curricular efforts.

Teachers found community and leadership to be very supportive. Marvie's survey of adult "animal count" volunteers showed complete support and excitement about the entire project. And, Marvie herself, while seeing room for improvement, saw an upsurge in community involvement, in student learning and excitement about learning.

The teacher surveys verified much of my own observations. Teachers indicated that they themselves had become more computer literate. However, they were not really using computers more in the classroom, even though they saw the value of doing so. They indicated two possible reasons for this: the lack of time and somewhat inadequate teacher computer education.

Teachers were split on whether or not they saw the animal count causing lasting change at East School, but felt the project had been successful, especially with the students. Although they observed that students had not progressed very far with computer skills, they certainly saw great gains in increased interest levels, cooperative learning skills and participation. Teachers also reported that students were applying knowledge across the curriculum, benefiting from increased learning opportunities and increasing their animal and bird vocabularies a great deal.

Vicki, although somewhat down about the final computer effort, did not fail to note many of the unsolicited returns from the animal count. "Eleanor's link has been so beneficial. We have two teachers hatching eggs in the classroom and Eleanor herself just shone with her own leadership in the project. Also, we are planning to build a blind out back of the school to watch the school nature area. We will have two pairs of binoculars, two backpacks and field notebooks hanging on hooks in the hallway and volunteers will come in to sit with children for fifteen minutes at a time. And, our interest in nature authors has increased. We hope to have Aronsky in next year."

What was it that brought about these results? There were lows and highs. There was an incredible lack of time, questionable initial ownership of the project, communication and personal problems, varied levels of participation, overly ambitious objectives and scheduling concerns. And yet, these impediments need to be considered along side those attributes that contributed to the success of the wildlife count. These would include the joint understanding of integrated curricula, a shared sense of values, the impact of a dynamic leader, the involvement of community, and the innumerable side benefits of the project itself listed above and yet to appear. When looked at this way, it is apparent that the latter group of considerations far outweigh the former.

INTEGRATED CURRICULUM

The purpose of this grant was to allow documentation and development of integrated

curriculum models in practice. Integrated curricula can be defined many ways. As pointed out by Betty Shoemaker (1989), the different forms of integrated curricula all seem to be opposed to fragmentation of curricula and compartmentalization of knowledge. Beyond this, today's integrated programs include many or all of the elements found in her formal definition of "integrative education":

> education that is organized in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of study. It views learning and teaching in a holistic way and reflects the real world, which is interactive. (Shoemaker, p. 5).

Generally interdisciplinary ideas recognize that the different disciplines have something to offer each other and that one discipline can be used to learn about another. An interdisciplinary course or integrated curriculum, brings together the knowledge of several disciplines to study a specific issue or question.

The animal count project set out "to teach a standard sampling technique for the accurate collection of data." This process was planned to include communication of plans and findings with other primary schools (later dropped from the overall plan); analysis of data collected with computer software; the study of local species of birds, mammals and amphibians and their habitats, via field guides, flash cards, children's literature, presentations by visiting nature authors, story-telling, journaling and live observations; computer assisted reference; the writing of survey questions and creation of a standard tally sheet; mapping; participation in an animal count; graphing; the study of population densities; and the exploration of the need and effects of habitat improvement. Each of the above items were not to be taught in isolation, but became part of a whole, sometimes as offshoots of the animal count event and sometimes as supporting beams. In short, this was to be an integrated effort across the subject areas AND an integrated effort across grades, with all students participating together whenever possible on all aspects of the wildlife survey.

East School teachers defined integrated curriculum in varying ways: "relating topics into reading, language arts, math, social skills, everyday life." "We take all the concepts and we see that they are useful in our daily lives." "...that all areas of learning are intertwined in materials presented as well as into students' lives and experiences." "Whatever I do involves every sense and every discipline..." "...when all academic areas are linked and interwoven together centering around a given topic."

Although the second grade teachers could verbalize what integrated curriculum might incorporate, they indicated that they were not following integrated models as well as they would like. "We integrate, but using literature and art more than other subjects. It's great when you bring in math." "We really have not done a school-wide SMT (science, math and technology) project." "We have not done this (a joint, integrated curriculum) across the school before." "I do not feel connected with the 1st grade." "It is a good direction for the school. It pulls everyone together. It gets us

talking." "Integration is pretty new in our school. We have done one school wide unit, but we were only using one discipline. This is the 1st time we have integrated as a school."

The first grade teachers were concerned that involvement in such a curriculum would jeopardize the school's literacy efforts. "If you go right into themes, children miss the literacy part." "It is a shame to lose our reading schedule." On the other hand, they saw the benefits of such a program, "It's good, though. It involves reading and listening and speaking and writing and problem solving." and "I like the community for kids." but, in the end, "It is not my top priority. I have to teach them to read."

When discussing how staff accepts integrated curriculum, teachers suggested that different people were at different stages when considering educational change. "Everyone is at his own spot. It is easier for some than others to change." and "Some have always done it their way". Teachers also saw their differences as a problem, "We need to be on a similar wave length to do things like this." Marvie suggested that, although the teachers were at different places, they were all child-centered, and this would bring them together in the end, "I think this project will light some fires because seeing the kids do it will make them see how good it is."

When asked what advice she would give to schools trying to develop and implement integrated curricula, Marvie suggested they "start small" and that "things need to start from within; if there is a way, the idea needs to grow out of the staff." These suggestions are supported by Richardson (1991, in Hargreaves, 1995) and Huberman (1993, in Hargraeves, 1995) who state that, classroom teachers, especially in their mid-to late-career, prefer to make small changes where they themselves will see them, within their own classrooms. Small efforts on the part of East School teachers to work with the animal count project should not be overlooked. As Robert Larson suggests (1992), "we need to appreciate small scale approaches as important avenues to improvement."

It is obvious that the staff members at East School are innovative and have been involved in several curricular changes in the recent past. "We have a lot of change going on here. Our reading and language curriculum is the primary focus and then we had the math residency. And we did QUEST this summer - social skills for kids." Although teachers see integrated efforts differently, they understand the specialness of the integrated animal count project (covering so many disciplines, application to daily life, participation of the entire school and community support) and believe the idea has merit.

SHARED VALUES AND PROJECT OWNERSHIP

There are many factors that might influence change. One of the strongest supporters of change, as espoused by Sergiovanni (1992, 1994) is the ownership of a common set of beliefs and values which gives all involved an obligation to each other and their work. A common set of beliefs exists at East School. Teacher interviews and survey

results showed that the East School teachers believe that the child comes first; that children learn experientially; that they learn in a variety of ways; that teachers need to help children make connections between the known and the unknown. These beliefs help connect the teachers to each other, to the children and to the educational efforts at East School. It is the sharing of such beliefs that allow teachers to work together and to trust that everyone is doing their best for the children. Teachers may not choose to implement in the same way and they may allow Marvie to take over some teaching efforts, but they share common values and beliefs, allowing varied implementations to support each other. These shared beliefs and values came from within and opened the door at East School for Marvie and Vicki to develop the wildlife count in an otherwise overworked atmosphere.

So, we find a shared vision in a general sense - through the sharing of values and beliefs. Having a shared vision, however, may be too inhibiting in this modern era of education. As stated by Andy Hargreaves, "mission statements can become too fixed to enable sufficient responsiveness to changes in policy mandates, personnel, or student populations." (1995). Rather, having shared values allows for the flexibility necessary to deal with the many demands of educational change.

At the first mention of the Animal Count, teachers did not ask endless questions of Marvie and Vicki about the project. They did not question Marvie's leadership. They nodded and appeared to instantly start thinking of how they would approach their part of the survey. They were not in opposition to the teaching approach the project suggested, but were worried about scheduling. They were unsure about computers and bird species but only showed minor hesitation in implementing the project. When Eleanor mentioned 200 bird species, two teachers smiled and indicated their ignorance, "that would blow me out of the water" and "just to know male and female".

Vicki was completely immersed in the project. Marvie described her as the "backbone" of the wildlife survey. Vicki was actually jealous of other curriculum efforts going on in the school, for example, the circus strand. "I remember thinking, " 'drat', what a childish point of view, but I'm looking at when my author is coming and I don't want to compete with a clown". Vicki was aware that she and Marvie had done all the planning and that teachers were not truly involved in the birth of the project. She expressed concern that she and Marvie had figured out the data base questions that teachers would use during a computer education session. "teachers were just handed the model, it was not brainstormed from the ground up..."

In the earlier stages of the project, teachers alluded to their lack of involvement. "The kids feel more a part of it now than the teachers because of the time they spend with Marvie." But it was not a negative statement. Teachers felt the pressure of other curricular demands and welcomed the support of Marvie and Vicki to get a good program underway. As the project progressed and teachers became more involved, they began to see its merits. The fact that teachers became so involved in the later stages of the project reflects the trust they had in Marvie brought on by shared values,

beliefs and a sense of community.

Shared values and beliefs, along with the ability of the staff to work and socialize together did not bring about initial joint ownership of the project. It was Marvie who suggested the grant, Vicki who wrote the grant and Marvie and Vicki who planned the various staff meetings and laid initial plans with Eleanor. Marvie taught all students once a week. Marvie prepared her classes for Ronald Rood; other teachers appear to have been busy teaching other subject matter. In short, Marvie and Vicki both built and maintained the merry-go-round.

It was not until February that teachers started to take ownership by supporting Marvie's efforts in their classrooms. The second grade teachers incorporated the wildlife count into their science units and first grade teachers read nature books with the children. All teachers were involved in the wildlife count itself, along with the visits from Eleanor, Steve Perren and Ronald Rood. Student preparation for these visits became more and more apparent as time continued.

In general, everyone concerned saw merit in the project. In February, teachers, however, were not yet ready to discuss the influence of the project on their teaching or on the curriculum. "I feel it is too early for these questions. I will be able to answer these better after we've done the work. We are still into the basics of doing the unit. Marvie is tying us together. The collaboration part is not here yet." On the other hand, Marvie, the guiding light, was convinced that the wildlife count would be a success and would lead to similar integrated curriculum efforts. "It could lead to major change in our approach to curriculum. They'll realize that it can be done."

As shown by the survey results, teachers did see the value and are interested in continuing next year. They will now be able to look at the wildlife count as curriculum to which they have contributed and will now be able to add and modify from their own experiences and expertise.

Leadership

Vicki describes Marvie as an "all-inclusive" person. "Even without the Vermont's New American Schools Coalition, Marvie would have been involved and had the community involved as well. Parents support Marvie. They follow her from school to school. They feel included. She does projects for the Brookmoor District community." Vicki explained that she herself volunteered to write the grant because of Marvie. " I have no children in this school. Marvie taught my son in another school. She is a multi talented person, with no time, but one who will find a way."

Much of the success of the animal count can be traced to Marvie's vision and leadership. Marvie made the decision to pursue the VISMT grant and to ask for Vicki's assistance. Marvie saw the work that she and Vicki did as a way to assist her teachers reach out to the children and she knew it was right. She counted on shared values and beliefs to support the project that she and Vicki brought into being. "I have visions

and dreams. Some of my teachers have visions, some not. I think this (the animal count) will light fires because the teachers will see what it does for the kids." and "I have this sense. It's like the ski program. After having done it, I knew it was right. It was like a light bulb."

The work Marvie and Vicki did to get the project off the ground did not dampen anyone's spirits, nor step on any toes. Marvie, as a charismatic leader and a leader who works for her staff and students, simply did a lot of work for everyone. She saw the project as innovative and a positive way to teach children. She offered staff and community development when possible (although this was difficult, especially in the case of technology). She gave an opportunity to teachers, students and community to learn. And yet, she still allowed room for each to take ownership when ready, "they'll realize it can be done." She said at the first staff meeting, "Vicki has taken us to a certain point, but there is still a lot that needs to come from the whole group here."

Marvie's leadership allowed her to see a need to help the project along. Working on the knowledge that shared values and beliefs existed, she taught the weekly classes, she and Vicki organized guest speakers, and she turned the computer efforts over to Vicki. She facilitated change in teaching style with these efforts, seeing herself as a change facilitator who needed to support and assist teachers (Larson, p. 61). She knew that the structure of the school day did not allow for collaboration, that it would be "tagged on rather than integral to ordinary commitments and working relationships" (Hargreaves, 1995). She knew she needed to ease this problem and that the core values of the team would allow her to do so.

Marvie's comments indicate that she believes that change needs to occur in teaching and learning first (Anderson, 1993), which caused her to concentrate on ways to facilitate this needed change. "With my school staff, things need to start from within. I need to figure out how to get the seeds to start from within." And yet, she did show concern that she had played too large a role in the animal count, "Though, I have no regrets (on how I set up this project), because the excitement of the kids will show us all."

The staff's mutual understanding of integrated curricula, their willingness to experience small change along with their support of each other, their shared values and beliefs and appreciation of Marvie's ideas and leadership have all contributed to staff anticipation of moving forward with the wildlife count in future years. As Marvie pointed out, "This project may not be any more exciting than our PTA circus or the math consultant, but animals are there all the time and Tom (the math consultant) and the circus will be gone."

EPILOGUE

Conversations with both Marvie and Vicki at the beginning of the new school year, brought up the following points:

-The grant did lead East School towards a change in teaching and learning.

-Whereas certain goals of the grant were not met, many other benefits came from the project initiated because of the grant.

-The grant brought quite a bit of pressure with it for Marvie and Vicki, possibly not for the teachers. Whereas some pressure is good, as it encourages risk-taking, the stress at times around accountability concerns was apparent.

The project is influencing what is happening at East School this year in the following ways:

-There will be another animal count, although the computer part of the original program is not on the drawing board.

-Interest is sparked to try to upgrade computer hardware in each classroom - there are only 2 MACS school-wide and and another phone line is needed to effectively use the modem and be networked with other schools.

-Teachers are much more open to integration both across the grades and across the subjects. This is seen in the projected International Night which will be preceded with the study of culinary arts, social studies, literature, science, math, music, cultural arts.

-There is more awareness of reaching children through different ways. The Animal Count brought out children as observers - children who were otherwise very nondescript in typical classroom setting.

-There is more awareness of other teachers and what they are dealing with each day because of the interaction with children from other classes.

-The Animal Count brought more community involvement, more support of the school and more interest in the students' education. The parents want Animal Count to continue.

-The Animal Count emphasized observation techniques and the importance of same to students and to adults.

-The Animal Count gave the opportunity to staff to see things done in new ways. It a way to introduce them to new ideas.

There were several concerns as well:

-Teachers worried about having the Animal Count as one more thing to do and saw the need to remove something from the curriculum before continuing the Animal Count.

-Marvie is not meeting with 1st and 2nd grade this year. This was too much for her; she felt she was actually doing work of others. Teachers need to do what Marvie was doing with their kids.

-It has not been formally established if the Animal Count made a difference on children's awareness of the specifics of wildlife in VT

-The use of computers was not happening in the classrooms where teachers were not interested in using computers in the ways described in the grant. It is possible that computer objectives were too old for k-2. The technical piece was weak.

-The data collected last year is not yet being used, but teachers anticipate working with the baseline set in last year's Animal Count.

I anticipated both the positive and negative outcomes as researcher. The one piece that I may have missed was the extent to which Vicki felt left out - she was not part of the team. This brings forth the question of the inner-workings of the team, the role of outside facilitators and knowledge of educational goals of the team. Vicki felt a deep ownership of the project and yet was not allowed to truly work with the team. She was too invested personally because of writing the grant and formulating the entire idea and too ignored because the teachers were not drawn into the technology involved in working with data bases. Vicki felt that the project had not been completed. Teachers felt it had and are now planning to continue it, sans computer technology. Questions can be raised as to why computer technology was not used in the project:

-To what extent did Vicki's being a non-parent, non-teacher and volunteer influence computer usage?

-To what extent did lack of hardware influence influence computer usage?

-To what extent did lack of time in the overall program influence computer usage?

-To what extent did overambitious goals influence computer usage?

Conclusions:

To be effective and long-lasting, incremental changes in education need to to be part of systemic change. O'Neil (1993), cites three main features of systemic change: 1) a need for unifying goals and vision 2) agreement on a core body of knowledge, skills, problem- solving capacities which result in curricular, instructional, assessment and professional development alignment and coherence. 3) restructuring of the governance system that states broad outcomes and structures, but allows local school flexibility in determining methods to meet the outcomes.

In the case of East school, the first and third components have been met through district and local work done under the New American Schools initiative. East school teachers, students and parents are presently involved with the second component. The Animal Count project is an example of beginning work at East School to address alignment and coherence at the local level.

Strong leadership, shared values and the staff's mutual understanding of integrated curricula lay the ground work for educational change in integrated teaching and learning at East School. The fact that the Animal Count, along with integration both across the grades and across the curriculum, is returning to East School illustrates that change is underway. This year, the Animal Count returns with an awareness of the impact of the original project on teaching and learning for teachers, parents and students. Teachers will now have the opportunity to build on the positive outcomes of the project, make modifications and integrate the Animal Count more effectively into their daily teaching. Students will again be able to work with students of different ages while learning in many different ways and from the perspective of different subjects. And, parents and community will once again be part of the education of their young people, learning with them as they explore the many aspects of the annual Animal Count.

These are the small, or incremental, changes that will lead to more significant change. East School is not yet in a position of having clear agreement on a core body of knowledge as described by O'Neil. Although this core body of knowledge is defined on a district level, teachers, parents and students still need to work together formally and define how it will look at the local level. The Animal Count, and its instructional approach through integrated methods forms part of this alignment, for instruction at East School, in support of district-established standards, is moving towards integration across both grades and subjects.

Bringing together what local schools want to do within the structure of district standards and how they will do it is a messy process. In the case of East school, the initial steps have been taken by Marvie as she leads her staff and parents through the mire of understanding and seeing the benefits of integrated teaching and learning. The shared values and understanding of integration within the staff, tied to Marvie's leadership is a fine beginning. Marvie has planted the seed. The Animal Count has started definition and ownership of how instruction will be handled at East School. However, it is now necessary to bring further and deeper definition. East School needs to mutually discuss and define their core body of knowledge and how they will align it with curriculum, instruction, assessment and professional development. In this second year of the Animal Count, more definition will come, which may bring about a move towards formalized discussion and development of O'Neil's core body of knowledge.

APPENDIX
Learning from the East School Journey

A checklist for those seeking educational change through the creation and implementation of integrated curricula

Look to a dynamic leader/facilitator

Share values and beliefs

Share understanding of integrated curriculum among staff and community

Remove something from curricular demands before adding new dimensions

Allow time for team work on curriculum development and implementation

Support each other

Allow room for variations on implementations

Modify in progress

Regroup often

Evaluate in progress

Share the workload; capitalize on individual strengths

Be flexible

Offer effective teacher education

Make time; work around set structures

Keep projects do-able; keep them small

Cultivate more teacher involvement earlier

Consider logistics of adding projects

Seek community/parent involvement and support

Allow for teacher awareness of how successful the change could be - visit other schools

Encourage district support

Secure technological support and expertise

Have a back-up facilitators

Consider "what ifs"

Begin with small group within a large school

Cultivate initial ownership

Prepare students for visiting speakers and debrief them afterwards

QUESTIONS ON IMPLEMENTATION:

What successes have arisen during implementation of the "bird count"?

What characteristics about your school supported implementation of the "bird count"?

What difficulties have arisen during implementation of the "bird count"?

What characteristics about your school discouraged implementation of the "bird count"?

Did you feel involved in any changes within the school that might have been brought about by the "bird count"? If yes, how? If not, why?

How have these changes affected you and your students?

GENERAL QUESTIONS:

What are your opinions on how kids learn and how teachers should teach?

What does integrated curriculum mean to you?

Do you feel your integrated curriculum model (the "bird count") will bring about lasting change in your school? If so, how? If not, why?

Are there aspects of the "bird count" model that you feel you will and/or will not incorporate into your classroom plans or practices? Why?

Summary of Teacher Experience

Please answer the following questions in reference to the Wildlife Count Project. If you would like to comment on any one area, feel free to jot down a written response. Thank you.

In reference to the animal count project, I	not at all	somewhat	pretty much	a great deal
1. felt involved in planning				
2. became more computer literate				
3. see the project causing lasting change in how we teach kids at East School				
4. worked consistently to bring the project into my daily teaching				
5. incorporated computer use into my classes				
6. saw value in incorporating computer use into my classes				
7. found the project difficult to implement				
8. found the project to be successful				
9. would like to see projects such as this a part of our curriculum				
10. found teacher development activities to be helpful				
11. found leadership to be helpful				
12. found community support to be helpful				
13. implemented the project as an integrated effort across the grades				
14. implemented the project as an integrated effort across the subject areas				
15. found a lack of time to fully prepare				
16. found a lack of time to fully participate				
17. found the project to differ from other curricular projects we have implemented				

	not at all	somewhat	pretty much	a great deal
18. think aspects of the project will cause me to change how I teach	_____	_____	_____	_____
In reference to the animal count project, I observed students				
1.learning basic computer skills	_____	_____	_____	_____
2.learning how to handle data	_____	_____	_____	_____
3.improving recognition skills	_____	_____	_____	_____
4.working with a CD	_____	_____	_____	_____
5.working with raw data	_____	_____	_____	_____
6.learning animal and bird vocabularies	_____	_____	_____	_____
7.becoming more interested in learning and schoolwork	_____	_____	_____	_____
8.working well cooperatively	_____	_____	_____	_____
9.using aspects of the project across the subject areas	_____	_____	_____	_____
10.using information learned during project in daily living	_____	_____	_____	_____
11.benefiting from increased learning opportunities	_____	_____	_____	_____
12. to be more in control of their own learning	_____	_____	_____	_____
13. to be more engaged in their learning	_____	_____	_____	_____
14. participating, without regard to particular learning styles or difficulties	_____	_____	_____	_____

Please list what was good and bad about the project:

Please comment on whether or not this project will be part of next year's curriculum and how.

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